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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,925	03/22/2004	Diane M. Landers	DP-310838	2044
22851 7590 09/12/2007 DELPHI TECHNOLOGIES, INC. M/C 480-410-202 PO BOX 5052 TROY, MI 48007			EXAMINER SHARON, AYAL I	
			ART UNIT 2123	PAPER NUMBER
			MAIL DATE 09/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/805,925

Applicant(s)

LANDERS ET AL.

Examiner

Ayal I. Sharon

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14-36 and 38-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-36 and 38-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Introduction

1. Claims 1-12, 14-36, and 38-45 of U.S. Application 10/805,925 filed on 3/22/2004 are currently pending.
2. Claims 13, 37 and 46 have been cancelled.

Claim Objections

3. Claim 27 is objected to because of the following informalities: It depends from claim 1, but based on the neighboring claims, should depend from claim 21. Examiner has interpreted that it depends from claim 21. Appropriate correction is required.

Claim Interpretation

4. Examiner has interpreted the terms "vertical modeling" and "horizontal modeling" according to the definition in paragraph [0054] of the pre-grant publication of the instant application, PG-PUB 2005/0209834. The paragraph teaches (emphasis added):

[0054] The present invention relates to the design and manufacture of a real-world object based upon a virtual CAD/CAM model. More particularly the methodologies for converting 3D models generated using "vertical" modeling techniques to horizontally structured 3D models. It will be appreciated that horizontal modeling ensures that a 3D model is configured so that features are substantially independent of the base

feature and other features. Thereby, alterations, additions, and deletions of individual features (e.g., holes, bosses, etc.) may be accomplished without impacting a significant portion of the model. ***Horizontal modeling accomplishes such independence by configuring the 3D model such that added features are positioned and placed relative to independent coordinate system(s) (e.g., one or more datums).*** Conversely, vertically constructed models, are constructed with numerous features exhibiting relationships with the base feature of the model.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. **Claims 1-12, 14-36, and 38-45 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims lack a “concrete, useful, tangible” result.**

7. The claimed invention as a whole must be useful and accomplish a practical application. That is, it must produce a “useful, concrete and tangible result.” State Street, 149 F.3d at 1373-74. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of “real world” value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36 (1966)); In re Fisher, 421 F.3d 1365 (Fed. Cir. 2005); In re Ziegler, 992 F.2d 1197, 1200-03 (Fed. Cir. 1993)).

8. The test for practical application as applied by the examiner involves the determination of the following factors:

- a. **“Useful”** – According to MPEP § 2106 (IV)(C)(2)(2)(a), the USPTO’s official interpretation of the utility requirement provides that the utility of an invention has to be (i) specific, (ii) substantial and (iii) credible. MPEP § 2107 and In re Fisher, 421 F.3d at 1372 (citing the Utility Guidelines with approval for interpretation of “specific” and “substantial”). In addition, when the examiner has reason to believe that the claim is not for a practical application that produces a useful result, the claim should be rejected, thus requiring the applicant to distinguish the claim from the three 35 U.S.C. 101 judicial exceptions to patentable subject matter by specifically reciting in the claim the practical application.
- b. **“Tangible”** - Applying In re Warmerdam, 33 F.3d 1354 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. § 101. In addition, According to MPEP § 2106 (IV)(C)(3), a claim that recites a computer that solely calculates a mathematical formula, or a computer disk that solely stores a mathematical formula, is not directed to the type of subject matter eligible for patent protection. Gottschalk v. Benson, 409 U.S. 63 (1972).
- c. **“Concrete”** - According to MPEP § 2106 (IV)(C)(2)(2)(a), a claimed process must have a result that can be substantially repeatable, or the

process must substantially produce the same result again. In re Swartz, 232 F.3d 862, 864 (Fed. Cir. 2000) (finding that an asserted result produced by the claimed invention is “irreproducible” claim should be rejected under section 101). The opposite of “concrete” is unrepeatable or unpredictable. An appropriate rejection under 35 U.S.C. § 101 should be accompanied by a lack of enablement rejection, because the invention cannot operate as intended without undue experimentation.

- d. **Independent claims 1, 21, and 45 do not recite what happens if a modeling feature is not dependent on existing datum placement. Therefore there is no tangible or concrete result in that scenario.**
- e. **All dependent claims inherit this defect.**

Allowable Subject Matter

9. The following is a statement of reasons for the indication of allowable subject matter.

10. The relevant prior art is:

- a. P. Drew and R. King, “The Performance and Utility of the Cactis Implementation Algorithms.” Proc. of the 16th VLDB Conf. 1990. pp.135-147. (“**Drew**”).
- b. U.S. Patent 5,301,318 to Mittal. Date of Patent: Apr. 5, 1994. (“**Mittal**”).

11. Neither Drew nor Mittal expressly teach the limitations in independent claims 1, 21, and 45.

12. Moreover, both Drew and Mittal teach away from the claimed invention.
13. Drew teaches in its performance evaluation of a CAD/CAM database that (See p.142, left column, 2nd paragraph. Emphasis added.):

Figures 13, 14, and 15 show the effects of varying the depth of the tree (i.e. length of dependency chain from the root to each leaf) while keeping the branching factor fixed at 2. Figures 16, 17, and 18 show the effects of using a shallow dependency tree template (depth 2) and varying the branching factor. Each of these cases seems to exhibit a relatively high variance across the range of structures. **In general, these results do not seem indicate a strong correlation between optimization performance and either the depth or branching factor of the attribute dependency template.**

14. Mittal teaches the following in regards to commercial CAE tools used in semiconductor manufacturing (See col.1, lines 36-40; and col.1, line 66 to col.2, line 2):

One disadvantage of such commercial CAE tools is that their data bases (used for netlisting) are "flat" (do not preserve schematic hierarchy and require large disk/memory space) ...

It is another object of the present invention to provide an extraction tool which maintains schematic hierarchy so that the simulation resulting can be coordinated with the actual schematic.

Response to Arguments

Re: Claim Rejections - 35 USC § 112

15. Applicants' amendments overcome the 35 USC § 112 applied in the previous office action. Those rejections have been withdrawn.

Re: Claim Rejections - 35 USC § 102

16. Examiner has found Applicants' arguments regarding the Landers reference to be persuasive, and has withdrawn the rejections.

Conclusion

17. The following prior art, made of record and not relied upon, is considered pertinent to applicant's disclosure.

- a. PR Newswire. "Delphi Redefines CAD/CAM Design for Manufacturers." Sept. 29, 2003. (Published less than one year before the filing of the instant application, therefore does not violate the on-sale bar. Not useful as prior art because does not specifically teach the claimed features of the claimed invention).
- b. PR Newswire. "Delphi and Cadpo Announce Training Program for Delphi's Breakthrough CAD/CAM Methodologies." Sept. 29, 2003. (Does not violate the on-sale bar, and not useful as prior art, for the same reasons as the reference immediately above).
- c. Anonymous. "Delphi Slashes Design Cycle, Establishes Center of Excellence." Tooling & Production, Nov. 2003. pp.6 and 8. (Same comments as for the references above).
- d. Anonymous. "Redefining CAD/CAM." American Machinist. Nov. 2003. p.40. (Same comments as for the references above).

- e. Ralph Templin. "Structured Design Methodologies Link Design and Manufacturing." CATIA Community. Published 03/30/2004. Printed 9/9/07 from Google's cache. (Same comments as for the references above).
- f. Steve Reinisch, "Horizontal Modeling", Created on Aug. 10, 2007.
<http://www.gatago.org/comp/cad/solidworks/56067806.html>. Printed on Sept. 9, 2007. (Page 4 of 8 argues that "Horizontal Modeling is just one word for it, you also may know it as Skeleton Modeling, Tier modeling, Sketch Assembly modeling, CAD Neutral Modeling, or Body Modeling.").

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a bi-week, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached at (571) 272-3753.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:

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or hand carried to:

Art Unit: 2123

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon
Art Unit 2123
September 9, 2007



ZOILA CABRERA
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100

9/10/07